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ABSTRACT

First grade disadvantaged children were separated into classes by sex and taught by a teacher of the same sex. It was hypothesized that (1) single sex classes would score higher on reading and arithmetic tests and show a more positive attitude toward school, teacher, and peers than coeducational classes, and (2) the one all-girls class would score higher on reading and arithmetic than the two all-boys classes. Both experimental and control groups were given the Philadelphia Reading Test and the Philadelphia Test in Fundamentals in Arithmetic. Attitude measures were The Pupil Attitude Toward School Inventory and The Way I Feel About Myself instruments. The single sex classes scored significantly higher in reading than the control group, but there were no significant differences between the all-boys classes and the all-girls class in reading and arithmetic. All-boys classes were more positive toward school, learning, teachers, peers, and self than the other groups. The control group was more positive in these attitudes than the all-girls class. It was recommended that teacher personality and competency variables be considered in a controlled longitudinal study and that different materials and teaching techniques be stressed for training teachers to work with all male classes. (DR)

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THE SCHOOL DISTRICT OF PHILADELPHIA
Office of Research and Evaluation
Field Research Services

# A PILOT STUDY TO ASSESS THE ACADEMIC PROGRESS OF DISADVANTAGED FIRST GRADERS ASSIGNED TO CLASS BY SEX AND TAUGHT BY A TEACHER OF THE SAME SEX

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## SUMMARY

This pilot study attempts to determine the advantages of assigning "inner city" first graders to class by sex.

Hypotheses Explored:

.Compared to coeducational classes, single sex classes will score higher:

a. in reading and arithmetic tests
b. in attitude toward school, teacher, and peers.

.The all girls class will do better than the all boys classes.

Methods and Procedures:

From the ten first grade classes at the Rhoads and Locke Schools, two all boys classes and one all girls class were formed. Teachers of the same sex were assigned. The male teachers were selected on the basis of willingness to be involved in the experiment. Post measures of attitude and academic achievement were collected in June 1969 from all first graders.

Findings:

.The single sex classes scored significantly higher in reading than the control group.

.There were no significant differences between the all boys classes and all girls class in reading or arithmetic scores.

.The all boys class was more positive toward school, learning, teachers, peers, and self than the other groups.

.The control group was more positive toward school, learning, teacher, peers, and self than the all girls class.

Recommendations:

.Initial results strongly suggest that this study be replicated with a greater number of classes and schools.

.Male teachers should receive special training in working with all male primary classes.

.Special curriculum and materials should be developed for use with all male primary classes.

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## INTRODUCTION

As they are now organized, schools function as sex-neutral institutions with males and females grouped together. However, it appears that it is the female who more often finds success in our educational system. More girls than boys graduate from high schools (in the ratio of about 51 to 49). And although more boys attend college than do girls, girls often are more successful academically.

This is a pilot project to explore the advantages of separating first grade "inner city" children by sex, to be taught by a teacher of the same sex. Supporters of this thesis argue:

.Scholastic differences between boys and girls are especially apparent in the primary grades.

.Access to appropriate adult models and opportunities for playing portions of their sex roles tend to favor girls (Peltier, 1968). A male teacher would serve as an ego model for 1st grade black children from lower socioeconomic areas. Often they grow up in a matriarchal society, where the father is cast in a lesser role or has no role at all in the family. (Bieber, et al, 1962).

.Female teachers give greater support to girls than to boys, which leads to greater aggressiveness and more negative attitudes on the part of boys (Sears and Feldman, 1966).

.Female teachers scold disorderly boys more often and much more harshly than they scold girls, which leads to twice as many boys being reported to the principal for learning problems and behavior disorders (Meyer and Thompson, 1963).

.Boys perceive school atmosphere as excessively feminine. Thus, from kindergarten through the fourth grade the girl typically outperforms the boy in all areas, and the ratio of boys to girls with reading problems ranges from three to one, to six to one (Bentzen, 1963: Tyler, 1947).

.Women teachers are often unaware that they use words differently, structure space differently, and perceive persons and reality differently from men. Thus, they "...value neatness and cleanliness above intellectual initiative...." and tend to be "...not only more prejudiced..." than men, but "...more dogmatic about their prejudice..." (Grambs and Waetjen, 1966).

.Sex differences in rate of development are better met by separate classes. Young boys mature less rapidly than girls: physically they are a year behind at the age of six, 18 months behind at age nine, and a full two years less mature upon entrance to high school. They are also more susceptible to physical stress and trauma, as indicated by their higher death and illness rate (Bentzen, 1966).

.Psychological differences between the sexes also dictate grouping children by sex with teachers of same sexes. Boys usually learn to be more aggressive, independent, and outspoken. They learn to avoid displays of emotion, befitting their traditional sex roles. Boys appear to be more analytic and more persistent in problem solving situations (in a laboratory setting) than girls when they are taught by a male teacher (McDavid, 1959).

Although many European countries have traditionally separated the sexes, American educators have generally rejected separate classes. They argue that the social learning that takes place in the classroom is as important as the subject matter being studied. Furthermore, they point out that separated classes lessen the school's ability to simulate and reflect real life. Some theorists feel that there is little evidence to support this argument (Peltier, 1968).

This study attempts to explore the questions raised above by comparing two all boys classes with an all girls class and seven coeducational classes.

## OBJECTIVES

As a result of separating first grade disadvantaged children into classes by sex, with a teacher of the same sex, the following hypotheses are proposed:

1. The single sex classes will score significantly higher on standardized and locally constructed tests than matched control classes.

2. The all girls class, with a female teacher, will score higher on the Philadelphia Tests in Reading and Arithmetic than the all boys class with a male teacher.

3. The children in single sex classes will show a more positive attitude toward the school, learning and the teacher on the Pupil Attitude Toward School Inventory and on self on The Way I Feel About Myself instrument than children in first grade coeducational classes.

## METHODS AND PROCEDURES

### Student Selection

The single sex classes at the Rhoads School were selected on the basis of their scores on the Philadelphia Kindergarten Readiness Test (administered June 1968). All girls whose raw scores ranged from 19-22 and boys whose scores ranged from 15-22 became eligible for the separated classes in the Rhoads School. There was no particular pattern of choosing the all boys class and control classes at the Locke School. (Table 1)

Table 1

Frequency Distribution of Scores on the Philadelphia Readiness Test (1968) for Year One Children at the Rhoads and Locke Schools

| Philadelphia Readiness Scores | Rhoads School | | | | | | Locke School | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Rm 308 | Rm 207 | Rm 206 Girls (Exp.) | Rm 209 Boys (Exp.) | Rm 203 | Rm 201 | Rm 212 | Rm 109 | Rm 112 | Rm 208 |
| | | | | | | | | Boys (Exp.) | | |
| 27 | 2 | | | | | | 2 | 2 | | |
| 26 | 12 | | | | | | 4 | 2 | | |
| 25 | 6 | 1 | | | | | 6 | 0 | | |
| 24 | 4 | 5 | | | | | 2 | 2 | 1 | |
| 23 | 5 | 5 | | | | | 1 | 3 | 0 | |
| 22 | 1 | 5 | 1 | | | | 3 | 2 | 1 | 1 |
| 21 | | 4 | 5 | 2 | | | 2 | 4 | 1 | 0 |
| 20 | | 3 | 8 | 2 | | | 3 | 0 | 2 | 1 |
| 19 | | 4 | 8 | 4 | | | 1 | 3 | 4 | 0 |
| 18 | | | | 4 | 3 | | 1 | 2 | 1 | 2 |
| 17 | | | | 3 | 4 | | 0 | 2 | 2 | 0 |
| 16 | | | | 4 | 3 | | 3 | 2 | 2 | 4 |
| 15 | | | | 4 | 5 | | 2 | 1 | 5 | 2 |
| 14 | | | | | 7 | 4 | | 1 | 2 | 2 |
| 13 | | | | | 0 | 5 | | 2 | 2 | 0 |
| 12 | | | | | 1 | 4 | | 0 | 2 | 2 |
| 11 | | | | | | 4 | | 2 | 1 | 3 |
| 10 | | | | | | 4 | | 1 | 1 | 2 |
| 9 | | | | | | | | | 1 | 1 |
| 8 | | | | | | | | | 1 | 5 |
| 7 | | | | | | | | | | 2 |
| 6 | | | | | | | | | | 2 |
| Student Total | 30 | 27 | 22 | 23 | 23 | 21 | 30 | 31 | 29 | 29 |
| Mean Score | 25 | 22 | 20 | 18 | 15 | 12 | 23 | 19 | 15 | 11 |

Another criterion was added in the selection and placement of children at the Rhoads School. It was felt that the teacher's evaluation of the child's social and emotional development plus the child's score on the Kindergarten Readiness Test was a more secure and reliable measure than the Readiness score alone.

## Teacher Selection

At the Locke and Rhoads Schools the principal sought out male teachers who were willing to teach a first grade and be part of this innovative program. Similarly, the female teacher at Rhoads School was selected by the principal on the basis of competency and willingness to be involved in the experiment.

Table 2 is presented to show the differences among the teachers with regard to race, academic background, and years of experience. All the teachers at the Rhoads School and all but one at the Locke School (control) were Negro. All of the teachers were experienced and had very similar academic backgrounds. We may, therefore, rule out the teacher factor as far as race, academic background and number of years of experience are concerned.

### Table 2

Race, Academic Background and Years of Experience of First Grade Teachers at the Rhoads and Locke Schools

**Rhoads School**

| Race | Classroom | Bachelor's Degree | No. of Credits Beyond Bachelor's | Years of Experience (Any School System) |
|---|---|---|---|---|
| Negro | 201(Control) | Yes | 18 | 5 |
| Negro | 203(Control) | Yes | 0 | 19 |
| Negro | 206(Exp.) | | 16 | 3 1/2 |
| Negro | 207(Control) | Yes | 30(Masters Equivalency) | 9 |
| Negro | 208(Control) | Yes | (Masters Equivalency) | 18 |
| Negro | 209(Exp.) | Yes | 21 | 3 1/2 |
| Negro | 308(Control) | Yes | 15 | 7 |

**Locke School**

| | | | | |
|---|---|---|---|---|
| Negro | 212(Control) | Yes | 30(Masters Eq.) | 9 |
| Negro | 109(Exp.) | Yes | 39(Masters Eq.) | 8 |
| Negro | 112(Control) | Yes | 12 | 21 |
| White | 208(Control) | Yes | 20(Masters Eq.) | 16 1/2 |

## Achievement Tests: Administration and Description

Most children in the first grade at Rhoads School were tested with the Philadelphia Kindergarten Readiness Test in May 1968. Those children entering in September 1968 for the first time were also given this test. This is a test that measures visual discrimination, number concepts, coordination, and comprehension skills.

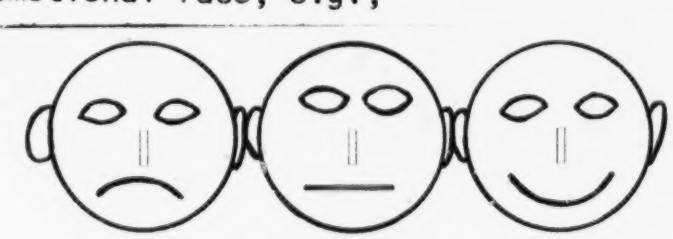
In May 1969, the Philadelphia Reading Test and the Philadelphia Test in Fundamentals in Arithmetic were administered to all first graders at the Locke and Rhoads Schools. The EIP consulting teachers and reading specialists administered and scored these tests.

In this study all results will be reported as standard scores. This will facilitate the comparison of results on different tests.

## Attitude Measures

Objective 3 was measured by The Pupil Attitude Toward School Inventory and The Way I Feel About Myself instruments that were administered in April 1969. The former instrument does not require reading ability on the part of the student.

The inventory asks the children 18 questions on how they feel about the school, teacher, reading, principal, and arithmetic. The child is asked to fill in the nose of either a smiling face, an unhappy looking face or an unemotional face, e.g.,



For each item, there is a range of 1 (negative) to 3 (positive). The total range for each individual is from 18 (most negative) to 54 (very positive). A copy of the instrument is found in the Appendix.

The Way I Feel About Myself instrument has twenty items to be scored as the school inventory with a total score range of forty points. A copy of each of these instruments along with the accompanying directions can be found in the Appendix. These instruments do have face or content validity. However, very little reliability data is available for them.

The attitude measures were administered and scored by the EIP consulting teachers and reading teachers. The teacher in each classroom was asked to leave the room and the children were assured that the responses would not be shown to the teacher.

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## RESULTS

### Objective 1

The scores of the two all boys classes and the one all girls class were combined and compared to the seven coeducational (control) classes. The experimental and control groups were compared on the Philadelphia Tests in Reading and Arithmetic. The data is presented below:

Table 3

Comparison of the Experimental and Control Groups on Philadelphia Tests of Reading and Arithmetic (June 1969)

| | Experimental Group | | Control Group | | t | p |
|---|---|---|---|---|---|---|
| | Average Score | Standard Deviation | Average Score | Standard Deviation | | |
| Reading | 4.2 | 1.43 | 3.7 | 1.49 | 7.4 | <.01 |
| Arithmetic | 4.2 | 1.66 | 3.7 | 1.78 | 2.0 | Not significant |

In both the reading and arithmetic tests, the experimental group scored higher than the control group. However, only in reading is this difference significant.

Since there was greater variance (i.e., larger standard deviation) among the individual scores on the arithmetic test, this tends to obscure statistical significance of the results. When individual differences within each group are great, a much larger difference between groups is needed to get statistical significance.

Grade equivalent scores are obtained on both tests by dividing the standard score by two. Thus, the grade equivalence for the experimental group was 2.1 in reading and 1.9 in arithmetic.

Objective 2

The two all boys classes were compared to the one all girls class. The results are presented in Table 4.

Table 4

Comparison of the Coeducational Classes on the Philadelphia Tests in Reading and Arithmetic

| | Boys (N=48) | | Girls (N=16) | | t | p |
|---|---|---|---|---|---|---|
| | Average Score | Standard Deviation | Average Score | Standard Deviation | | |
| Reading | 4.0 | 1.41 | 4.9 | 1.28 | .7558 | N.S. |
| Arithmetic | 4.3 | 1.67 | 4.1 | 1.65 | .0151 | N.S. |

Though the girls scored higher than the boys in standard scores in reading and the boys were higher than the girls in arithmetic, these differences were not statistically significant. Thus, we must summarize from the above data that there were no significant differences between the two all boys classes and the all girls class on either the reading test or on the arithmetic test.

Objective 3

The following comparisons were made on the Student Attitude Toward School instrument and The Way I Feel About Myself:

.Boys vs. girls classes

.Boys classes plus girls class vs. control classes

.Boys classes vs. girls class vs. control classes

The results are presented in tabular form in Table 5. The findings are summarized as follows:

.Boys classes were significantly more positive in attitude toward school, learning, teachers, peers, and self than the control classes.

.Boys classes were significantly more positive in attitude toward school, learning, teachers, peers, and self than the girls class.

.Control classes were significantly more positive in attitude toward school, learning, teachers, peers, and self than the all girls class.

When the girls group was combined with the boys class and then compared to the control group, no significant difference was found.

Table 5

Comparison of the Two Experimental and Control Groups on the Attitude Measures (June 1969)

| | | | Total AVERAGE SCORE | | |
|---|---|---|---|---|---|
| | F* | p | Boys N=38 | Girls N=23 | Control N=156 |
| Student Attitude Toward School Inventory | 1.487 | 0.035 | 48.9 | 40.7 | 44.1 |
| The Way I Feel About Myself | 1.503 | 0.029 | 50.0 | 43.0 | 46.3 |

*The statistical procedure was a one factor multivariate analyses of variance using the University of Miami revised MANOVA program.

To summarize, the two all boys classes with male teachers did show significantly more positive attitudes toward school, learning, teachers, peers, and self than either children in coeducational classes or an all girls class with a female teacher, as measured by the Student Attitude Toward School Inventory and The Way I Feel About Myself instruments.

## DISCUSSION OF RESULTS

This pilot study explored the advantages of separating first grade "inner city" children by sex to be taught by a teacher of the same sex. This initial study found that two boys classes in two different schools did significantly better than an all girls class and seven coeducational first grade classes in reading and in attitude toward school, teacher, peers, and self.

This study did not obviate or rule out the teacher personality and competency variables which can be important factors in explaining differences among groups.

The principals noted that it was nearly impossible to find a male teacher who would be willing to teach a first grade class. The two male teachers were obviously not a real sample of male teachers as evidenced by their willingness to participate in this experimental study.

We cannot overlook the possibility that the results that were found were due to differences in teachers and pupils, rather than differences due to the experimental treatment. A study with proper controls with many more classes will be needed to answer these questions.

## RECOMMENDATIONS

1. The results of this study strongly suggest that this study be replicated with proper controls with many more classes and schools throughout the District.

2. The principals found that it was nearly impossible to find male teachers who would be willing to teach first graders. Any replication of this study would require special in-service training and/or workshops with male teachers to orient them to be able to teach first grade children.

3. Since it may be too early to make an evaluation at the end of one year, this program should be continued through the primary grades and evaluated as a longitudinal study.

4. Different materials and teaching techniques should be stressed in working with all male classes: Thus, boys should work in rooms featuring action centers including science equipment, typewriters, tape recorders, live animals and greater stress on the physical education program.

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# APPENDIX

## MEASURING INSTRUMENTS


| | |
|---|---|
| INSTRUCTIONS | A |
| STUDENT ATTITUDE TOWARD SCHOOL INVENTORY | B |
| STUDENT ATTITUDE ANSWER SHEET | C |
| THE WAY I FEEL ABOUT MYSELF | D |

THE SCHOOL DISTRICT OF PHILADELPHIA
Office of Research and Evaluation
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# INSTRUCTIONS FOR ADMINISTERING THE STUDENT ATTITUDES TOWARD LEARNING QUESTIONNAIRE

Generally, the instructions are similar to those given for the administration of any test in the public school. The room should be properly ventilated, with good lighting and the children should be reassured that the test will not constitute a part of their grade.

1. Before you give the following directions, put the following pictures on the chalkboard where all the children will have a class view of them.

2. Begin by saying the following: "Your are being asked to show your feelings about how you feel about school and this class. There is no correct answer for any of the questions. What we want to know is how you feel about certain things. Please don't mark like your neighbor or the way you think somebody else would like you to mark. Nobody else will see your papers and how you answer will have nothing to do with how you do in school. Mark the way you really feel. For example: Suppose that you were asked the following question:

   How do you feel when you think of eating a chocolate covered piece of cake?

Now some of you think you like it very much and would be happy to have a slice of it right now. So now look at the blackboard! Which one of these noses of the three figures would you fill in?"

(Respond to the children)

"That's right. This one over here, this happy, smiling face. You would fill in the nose of this face if you felt very happy when you think of eating a slice of chocolate covered cake. Now some of you might hate and really can't stand chocolate covered cake. So which nose of these three figures would you fill in if you could not stand chocolate covered cake?"

(Respond to children's response until you get the right answer.)

"That's right. This one over here, this sad looking face. You would fill in the nose of this face if you felt terrible and hated to eat chocolate covered cake.

Now what if you really didn't care one way or the other; that is, you don't feel happy or sad about eating chocolate covered cake. Which nose of the three figures would you fill in?"

(Rsepond to children's response until you get the correct answer.)

"Again, you are right; this middle figure, which doesn't look happy or sad. You would fill in the nose of this face if you didn't feel either happy or sad.

Now children, I am going to give you a sheet with faces just like the one on the board. For each question that I read to you, you are to pick the one of the three faces that shows how you feel about the question I ask you. If you feel happy, take your pencil and blacken the Nose of the smiling face. If you feel sad, blacken the nose of the sad face. If you don't care, fill in the nose of the face that doesn't look happy or sad."

3. Distribute the papers.

4. Have the children fill in name, date, circle either G (girl) or B (boy), school, room number and grade.

5. Read the 18 attached questions. Pause between each to allow them to mark their Answer Sheets. When you are finished collect the papers and check them to make sure the identifying information is correct. Then put them in the envelope provided and return them to:

Dr. Louis Scheiner
Room 403, Philadelphia Board of Education
21st Street and the Parkway
Philadelphia, Pennsylvania 19103

Thank you.

STUDENT ATTITUDE TOWARD SCHOOL INVENTORY

(Grades 1-3)

1. How do you feel when it's time to get up and go to school?
2. How do you feel when you think about going home after school today?
3. How do you feel when you have to take out your reader?
4. How do you feel about how well you read?
5. How do you feel when you think about how fast you learn?
6. How do you feel about how much you know?
7. How do you feel about how well you do arithmetic?
8. How do you feel about the way your teacher treats you?
9. How do you feel when the teacher says that it's your turn to read out loud before the group?
10. How do you feel about how well you do your schoolwork as compared to the other children in the class?
11. How do you feel when you think of doing homework?
12. How do you feel when you think about your schoolwork?
13. How do you feel when you are working with others in class?
14. How do you feel when you think about studying?
15. How do you feel when you think about the principal?
16. How do you feel when you think about this school?
17. How do you feel when you think about this classroom?
18. How do you feel when you think about most of the children in this class?

**********

The following two pages of this document contain sample sheets of "The Way I Feel About Myself, which are not available for reproduction at this time. The test is available from Optical Scanning Corporation, Newtown, Pennsylvania.